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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/580,563	05/30/2000	Kevin Peter Picott	1252.1051	1726
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STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			EXAMINER GOOD JOHNSON, MOTILEWA	
			ART UNIT 2672	PAPER NUMBER 16

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/580,563

Applicant(s)

PICOTT, KEVIN PETER

Examiner

Motilewa A. Good-Johnson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 May 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-26 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is responsive to the following communications: Application, filed on 05/30/2000; IDS, paper #2, filed on 05/30/2000; Amendment A, filed 11/27/2002; Amendment B, filed 04/28/2003; Amendment C, filed 10/20/2003; Amendment D, filed 12/10/2003; Amendment E, filed 05/28/2004.

This action is made final.

2. Claims 1-3 and 5-25 are pending in this application. Claims 1, 17 and 19-25 are independent claims.
3. The present title of the application is "System for passing algorithms with polymorphic parameter sets in a dependency graph of a graphics creation process" (as originally filed).

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-3 and 5-26 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims that are noted above as being rejected but that are not specifically cited below are rejected based on their dependency on rejected independent claims as incorporating the errors of those claims and not imparting any features leading to statutory subject matter.

With respect to dependent claim 1, the claim recites "a method, comprising: evaluating a dependency graph of a graphics creation process using a computer, comprising: passing a pointer to an algorithm associated with a first dependency node to a second dependency node allowing the second dependency node to execute the algorithm; and executing the algorithm as a part of an evaluation of the second dependency node. The disclosed invention has a practical application, e.g., the pass of an algorithm with a first node to a second node to execute the algorithm. The disclosed invention is within the technological arts, i.e., the disclosed invention uses a computer. However, the steps of the method do not recite any post-computer process activity, i.e., no independent physical acts, and the steps of the method do not recite any pre-computer process activity, i.e., no manipulation of data representing physical objects or activities.

Therefore, in order to determine if the process is statutory, one must determine what the computer does to achieve a practical application. A process that merely manipulates an abstract idea is non-statutory despite the fact that it might inherently have some usefulness. For such subject matter to be statutory, the claimed process must be limited to a practical application of the abstract idea. Examiner finds no limitation to a practical application for the claimed method. As an illustration of the lack of limitation to a particular, practical application, the method claimed by Applicant could be accomplished by mental steps of one of ordinary skill in the art aided by pencil and paper. The passing of a pointer to an algorithm with associated with a first dependency node to a second dependency node. The preamble of the claim is given little weight in

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establishing a statutory claim when there are no elements in the claim limitations into which the preamble could give substantial meaning of a practical limitation. Therefore, when taken as a whole, the claim recites manipulation of an abstract idea. See *In re Schrader*, 22 F.3d 290, 30 USPQ2d 1455 (Fed. Cir. 1994), and *In re Warmer dam*, 33 F.3d 1354, 31 USPQ2d 1754.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3 and 5-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gafter, U.S. Patent Number 5,666,296.

As per independent claim 1, a method, comprising: evaluating a dependency graph of a graphics creation process using a computer, comprising: passing a pointer to an algorithm associated with a first dependency node to a second dependency node; (Gafter discloses a symbolic evaluation of an algorithm and converting the algorithm into a flow graph having a plurality of nodes each node representing at least one of the plurality of statements, col. 1, lines 55-67)

However, it is noted that Gafter fails to disclose allowing the second dependency node to execute the algorithm and executing the algorithm as a part of an evaluation of the second dependency node.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include passing the algorithm because the evaluation of the algorithm is necessary for each node, because Gafter discloses evaluating each node symbolically in succession according to control flow, and furthermore it would have made it easier to find the reverse dominators computed for the nodes of the control flow graph disclosed in Gafter.

With respect to dependent claim 2, algorithm comprises a self-evaluating data structure. (Gafter discloses computing reverse dominators from the control flow graph and the reverse dominators control that the give node is guaranteed to pass, i.e. self evaluating, col. 3, line 64 – col. 4, line 20)

With respect to dependent claim 3, algorithm comprises an algorithm having a defined set and type of inputs and outputs. (Gafter discloses the algorithm has at least one condition branching statement dependent on the value of at least one input datum, col. 1, lines 61-67)

With respect to dependent claim 5, structure comprises an algorithm calling method. (Gafter discloses the algorithm has at least one condition branching statement dependent on the value of at least one input datum, col. 1, lines 61-67)

With respect to dependent claim 6, evaluating comprises determining a type of a passed parameter. (Gafter discloses computing reverse dominators from the control

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flow graph and the reverse dominators control that the give node is guaranteed to pass, i.e. self evaluating, col. 3, line 64 – col. 4, line 20)

With respect to dependent claim 7, the algorithm parameter types are identified dynamically as the dependency graph is executed. (Gafer discloses the symbolic evaluation yields the data flow graph representation, col. 3, lines 8-15)

With respect to dependent claim 8, the data structure contains information describing a set of input and output parameters the algorithm accepts. (Gafer discloses a translation process in which the data-dependent control flow path is evaluated to see if it can be handled, col. 3, lines 16-21)

With respect to dependent claim 9, the information determines if algorithm attribute types within the dependency graph are compatible. (Gafer discloses the control flow graph having a conditional expression, col. 3, lines 50-63)

With respect to dependent claim 10, data structure comprises default values for all input and output parameters. (Gafer discloses implementing a true and false conditional branch in the shadow symbol table, col. 11, lines 1-37)

With respect to dependent claim 11, further comprising mapping parameters of first and second algorithms of the first and second nodes. (Gafer discloses a shadow symbol table that contains the entries for the argument and variables, col. 4, lines 48-65)

With respect to dependent claim 12, mapping comprises using an index. (Gafer discloses a shadow symbol table, i.e. index, col. 4, lines 48-65)

With respect to dependent claim 13, mapping defines a relationship where input parameters are ignored and output parameters are unmapped and take on default values. (Gafter discloses implementing a true and false conditional branch in the shadow symbol table, col. 11, lines 1-37)

With respect to dependent claim 14, parameter value and type are passed for the mapping. (Gafter discloses symbolically evaluating each node of each branch, col. 4, lines 11-20)

With respect to dependent claim 15, the algorithm data structure and value index are passed for the mapping. (Gafter discloses in tables R and S, for the value of the variable b, evaluating the algorithm of the entire data structure, col. 11, lines 10-35)

With respect to dependent claim 16, mapping comprises an index remapping and a matrix of data casting methods, which will change one type of data into another. (Gafter discloses recursive interpretation of the branch nodes, col. 5, lines 45-55)

As per independent claim 17, a method comprising: evaluating a dependency graph of a graphics creation process using a computer, comprising: passing a pointer to an algorithm of a first dependency node to a second dependency node allowing the second dependency node to execute the algorithm of the first dependency node . . .

(Gafter discloses a symbolic evaluation of an algorithm and converting the algorithm into a flow graph having a plurality of nodes each node representing at least one of the plurality of statements, col. 1, lines 55-67) comprising a self evaluating data structure comprising an algorithm calling method and containing information describing a set of input and output parameters . . . (Gafter discloses computing reverse dominators from

the control flow graph and the reverse dominators control that the give node is guaranteed to pass, i.e. self evaluating, col. 3, line 64 – col. 4, line 20) determines if algorithm attribute types within the dependency graph are compatible and comprising default values . . . ; (Gafter discloses a translation process in which the data-dependent control flow path is evaluated to see if it can be handled, col. 3, lines 16-21) mapping parameters of first and second algorithms of the first and second nodes, where the mapping comprises an index, defines a relationship where input parameter are ignored and output parameters a unmapped and take on default values . . . ; (Gafter discloses a shadow symbol table that contains the entries for the argument and variables, col. 4, lines 48-65)

However, it is noted that Gafter fails to disclose allowing the second dependency node to execute the algorithm and executing the algorithm as a part of an evaluation of the second dependency node.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include passing the algorithm because the evaluation of the algorithm is necessary for each node, because Gafter discloses evaluating each node symbolically in succession according to control flow, and furthermore it would have made it easier to find the reverse dominators computed for the nodes of the control flow graph disclosed in Gafter.

With respect to dependent claim 18, an index remapping and a matrix of data casting methods, which will change one type of data into another. (Gafter discloses recursive interpretation of the branch nodes, col. 5, lines 45-55)

As per independent claims 19-20, they are rejected based upon similar rational as above independent claim 1.

As per independent claim 21, it is rejected based upon similar rational as above independent claim 1 and dependent claims 2-16 respectively.

As per independent claim 22, it is rejected based upon similar rational as above independent claim 17.

As per independent claim 23-26, they are rejected based upon similar rational as above independent claim 1.

Response to Arguments

7. Applicant's arguments filed 05/28/2004 have been fully considered but they are not persuasive.

Applicant argues the 101 rejection in which passing a pointer to an algorithm of a first dependency node to a second dependency node to execute the algorithm as part of an evaluation of the second dependency node is concrete, tangible and provides a useful result. Examiner maintains the 101 rejection because the steps of the method do not recite any post-computer process activity, i.e. useful result, output.

Applicant argues that Gafter fails to disclose executing an algorithm as part of the second dependency node. It is the interpretation of the Examiner that an execution of an algorithm, would include the summation or computation and therefore Gafter would meet the claim limitation because Gafter discloses each node evaluation having a symbolic evaluation in a data flow graph. It is the Examiner's position that in the

evaluation of the algorithm the algorithm itself is inclusive of the results and therefore if one evaluates the entire algorithm, or a partial evaluation of the algorithm, the algorithm is still evaluated.

Applicant argues that Gafter fails to disclose the evaluation of each node when new data is inputted to provide control and flexibility of the execution. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the elimination of evaluation each node when new data is input) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant argues that Gafter fails to disclose reexecuting an algorithm passed from one node to other nodes when input data of the other nodes changes. Gafter discloses reevaluation of a node, based on new input data, execution of a node and returning the result, col. 8, lines 25-64.

Applicant argues that Gafter fails to disclose the parameter types identified dynamically as the graph is executed. Gafter discloses partial evaluation in which unspecified inputs, which the Examiner interprets as parameter types, are evaluated at run time, which the Examiner interprets as dynamic execution, col. 1, lines 34-37.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

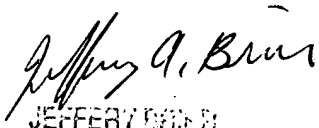
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Motilewa A. Good-Johnson whose telephone number is (703) 305-3939. The examiner can normally be reached on Monday - Friday 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Razavi can be reached on (703) 305-4713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Motilewa A. Good-Johnson
Examiner
Art Unit 2672

mgj


JEFFERY D. BRUNS
PRIMARY EXAMINER